Remarks

Claims 1-21 are pending in the application and stand rejected under 35 U.S.C. 101 and 35 U.S.C. 102(b). Claims 1-21 remain pending in the application for further consideration by the Examiner.

Drawings

Applicant submitted amended drawings in the response dated 26 December 2007 to overcome objections raised by the Examiner in the prior office action. The present office action does not acknowledge whether those corrected drawings were accepted. As such, Applicant kindly requests acknowledgement in the next communication as to whether the drawings are accepted.

Rejections Under 35 U.S.C. 101

Claims 1-21 were rejected under 35 U.S.C. 101 as being directed to non-statutory subject matter. As a preliminary matter relating to the advancement of the prosecution of this case on the merits, Applicant respectfully submits that it is unfortunate that this rejection was not raised in the first office action since it does not appear that the substance of Applicant's prior amendments necessitated this rejection. Nevertheless, Applicant appreciates the Examiner's issuance of a non-final action so that Applicant has the opportunity to address this newly raised rejection in the first instance.

The Examiner directs Applicant's attention to 35 U.S.C. 101 Interim Guidelines and, specifically with emphasis on the Clarification of Interim Guidelines for Examination of Patent Applications for Subject Matter Eligibility. Applicant is familiar with those guidelines and, in the context of the present rejection, has reviewed the guidelines and the statutory provisions of 35 U.S.C. 101. For at least the following reasons, Applicant hereby traverses the rejection under 35 U.S.C. 101and respectfully submits that the claimed invention is, in fact, directed to statutory subject matter.

In particular, the Examiner states that "claims 1-21 define non-statutory processes because they merely manipulate an abstract idea (the mathematical manipulation of data (speech information)) without a claimed limitation to produce a useful, concrete, tangible result." Furthermore, the Examiner states that "[i]n the current claims, there is not a claimed active step of producing a useful, concrete, tangible, final result." Applicant respectfully disagrees.

Estimating a noise level in a voice (speech) signal is a useful, concrete, and tangible final result produced by Applicant's claimed invention. Estimating a noise level in a voice

(speech) signal according to Applicant's claimed invention is not an abstract idea or a manipulation of an abstract idea (rather, estimation of noise is tangible), it is repeatable and predictable (concrete), and it is specific, substantial, and credible (therefore useful).

Each of independent claims 1, 12 and 15 sets forth and produces this useful, concrete and tangible result. Applicant's claimed invention recites partial decoding, use of the excitation parameter for estimating noise, etc. to achieve the useful, concrete and tangible result of estimating noise with less computational complexity and cost than in prior arrangements.

In particular, less computationally complex noise estimation is a tangible, useful and concrete result that can be used in communications networks, for example. Noise estimation is required for many well-known telecommunication applications, e.g., acoustic echo control, noise compensation, noise reduction, etc. (see, inter alia, Applicant's Specification, e.g., page2, lines 9-19, page 3, lines 3-11, page 3, line 26 to page 4, line2, and page 15, lines 3-14). One of ordinary skill in the art will readily understand the utility of Applicant's claimed invention in these various exemplary applications.

In view of the foregoing, Applicant respectfully requests that the rejection under 35 U.S.C. 101 be withdrawn. If the Examiner believes there are still outstanding issues or questions in this regard, perhaps an interview could help clear up such issues and questions and facilitate a more efficient resolution of this newly raised rejection.

Rejections Under 35 U.S.C. 102

Claims 1-21 were rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent 6,240,386 issued to Thyssen et al. (hereinafter referred to as "Thyssen et al."). This ground of rejection is respectfully traversed for at least the following reasons.

First, Applicant respectfully points out that the present office action simply maintains the rejection under 35 U.S.C. 102(b) using the identical grounds set forth in the previous action. The present action does not at all recognize or address the points set forth by Applicant in his last response (dated 26 December 2007) where Applicant responded by distinguishing his claims from Thyssen et al. and showing with specificity how it is believed that Applicant's claim are not at all anticipated by the teachings in the Thyssen et al. reference.

The present action simply states in conclusion that the "Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection." Given that the rejection under 35 U.S.C. 102(b) in the present action is based on the identical grounds set forth in the previous action, it would then follow that the "new ground(s) of

rejection" in the present action are, in fact, relating to the 35 U.S.C. 101 rejection. By not addressing the sufficiency and/or perceived deficiency of Applicant's arguments on the record, Applicant therefore is not able to rely on the present action to identify or clarify remaining issues for Applicant to address under this rejection that would advance the prosecution in a productive and efficient manner.

Since the present action does not address with any specificity why the Applicant's previous arguments were not sufficient to overcome the rejection under 35 U.S.C. 102(b) based on Thyssen et al., Applicant therefore maintains the same arguments set forth in the previous response (dated 26 December 2007), which are set forth again in detail below. In an effort to further advance prosecution of this case, Applicant provides additional reasoning below to further support the previously set forth arguments.

Applicant's claim 1 requires estimating a noise level of the voice signal using the excitation parameter <u>that is obtained directly from the partially decoded bit stream</u>. Claim 12 requires estimating a noise level of the speech signal using the fixed codebook excitation component and the adaptive codebook excitation component <u>obtained directly from the partially decoded bit stream</u>. And finally, independent claim 15 requires a noise estimator operable to estimate a noise level in the speech signal using the excitation parameter <u>that is directly obtained from the partially decoded bit stream</u>.

Because the noise level estimate is derived directly from the excitation value of the speech signal, e.g., fixed codebook gain, rather than from a fully decoded PCM signal, a significant reduction in computational complexity can be realized as compared to PCM signal-based noise estimation in the prior art, such as that taught by Thyssen et al. In particular, only partial decoding is required to unpack the excitation parameter(s) in Applicant's claimed invention as opposed to fully decoding and reconstructing a fully synthesized PCM signal as in the prior art arrangements.

Applicant does not agree that the referenced description in Thyssen et al., which is used as the basis for rejecting all of the Applicant's claims, teaches or even suggests partially decoding an encoded signal to then estimate a noise level of a voice signal by directly using the excitation parameter obtained by that partial decoding. Instead, Applicant respectfully submits that the teachings in Thyssen et al. clearly describe calculation of the noise estimate in a substantially different manner. For example, Thyssen et al. describe that a running average energy of the background noise is calculated, which is derived from the energy of the current input signal (see, e.g., col. 27, lines 34-43). More specifically, the teachings by Thyssen et al.

contemplate encoding/decoding speech in its entirety and, for the decoding process in particular, a full decoder must be employed to synthesize the speech signal so that conventional noise estimation can be applied to derive a noise estimate from the signal's energy.

Deriving a noise estimate from an encoded speech signal according to Thyssen et al. as well as other prior art teachings requires a computationally-intensive process to decode the entire signal to derive the desired signal parameters and then multiple computational blocks prior to the use of such parameters for noise estimation.

As specifically mentioned in Applicant's specification, the Applicant's claimed invention is directed at solving this particular problem, i.e., reducing the computational complexity associated with noise estimation of an encoded speech signal. Applicant achieves this result by partially decoding the bit stream to extract the excitation parameter and then directly using the excitation parameter, from the partially decoded signal, as direct input for estimating noise. In this manner, the intermediate processing associated with the full decoding approach used by Thyssen et al. and others can be avoided.

Moreover, Applicant wishes to point out that, in rejecting each of Applicant's claims, the Examiner cites to the same portion of the Thyssen et al. disclosure (col. 7, line 36 to col. 19, line 55), without providing any specificity as to how these teachings specifically anticipate the recited elements of Applicant's claims. Furthermore, it should be noted that the majority of the cited description in Thyssen et al. mostly refers to the encoding process and is therefore not instructive, let alone anticipatory, to Applicant's claimed invention which is directed to the decoding process.

When examining the Thyssen et al. disclosure in its most favorable light, it appears that only the following sections could even be considered as relating to decoding:

A. Col 7, lines 36-67 and Col. 10, lines 46-65 separately. These sections appear to describe Fig. 5 in the Thyssen et al. reference, which appears to have some correspondence to Applicant's Admitted Prior Art (Fig. 2). For example, blocks 511, 515, 519, 521, 531, 535 in Thyssen et al. appear to correspond to blocks 201, 205, 203, 208+206, 212, 214 in Applicant's Prior Art Fig. 2.

B. Col. 8, line 8-17. This portion appears to describe Fig. 2 in the Thyssen et al. reference. This disclosure seems to present a prior-art system level overview of the encoding / decoding process, but without any details of the decoding process.

Even when giving the most favorable reading, Applicant maintains that none of these portions of the Thyssen et al. reference teach or even suggest partially decoding an encoded signal to then estimate a noise level of a voice signal by directly using excitation parameter obtained by that partial decoding.

Because Thyssen et al. neither teach nor suggest each and every element of Applicant's independent claims 1, 12 and 15, these claims are therefore not anticipated by Thyssen et al. Accordingly, Applicant respectfully submits that claims 1, 12 and 15 are allowable over Thyssen et al. and requests that the rejection under 35 U.S.C. 102 be withdrawn.

Since independent claims 1, 12 and 15 are allowable over Thyssen et al., so too are dependent claims 2-11, 13-14, and 16-21, all of which include all the elements from their respective base claims (independent claims 1, 12, 15).

Conclusion

It is respectfully submitted that this application is now in condition for allowance. Reconsideration and allowance are, therefore, respectfully solicited.

If, however, the Examiner still believes that there are unresolved issues, he is invited to call Applicant's attorney so that arrangements may be made to discuss and resolve any such issues.

If any additional fees are due with respect to this amendment, please charge them to Deposit Account No. 12-2325.

Respectfully submitted,

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